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(54) **Coating compositions for use with an overcoated photoresist**

(57) In a first aspect, organic coating compositions are provided, particularly spin-on antireflective coating compositions, that contain a polyester resin component. In a further aspect, coating compositions are provided that contain a resin component obtained by polymeriza-

tion of a multi-hydroxy compound. Coating compositions of the invention are particularly useful employed in combination with an overcoated photoresist layer to manufacture integrated circuits.

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## EUROPEAN SEARCH REPORT

Application Number  
EP 02 25 6723

DOCUMENTS CONSIDERED TO BE RELEVANT			
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-The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 February 2004	Examiner HEYWOOD, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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# EUROPEAN SEARCH REPORT

Application Number  
EP 02 25 6723

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EPO FORM 1503 (03.02) (P4/C01)



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# EUROPEAN SEARCH REPORT

Application Number  
EP 02 25 6723

DOCUMENTS CONSIDERED TO BE RELEVANT			
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-The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 February 2004	Examiner HEYWOOD, C
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date O : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
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EPO FORM 1503 03/02 (REV01)



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Application Number

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#### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

#### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:  
1-32, 33-57(where falling within the scope of claim 1), 58-93,  
94-143(where falling within the scope of claim 1).



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LACK OF UNITY OF INVENTION  
SHEET B

Application Number  
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-32,  
33-57(where falling within the scope of claim 1),  
58-93,  
94-143(where falling within the scope of claim 1)

A) A coated substrate comprising: an antireflective composition layer comprising a polyester resin; and a photoresist layer over the antireflective composition layer.

B) method of forming a photoresist relief image, comprising: applying an antireflective composition layer on a substrate, the antireflective composition comprising a polyester resin; and applying a photoresist composition layer over the antireflective composition layer; and exposing and developing the photoresist layer to provide a resist relief image.

- C) An antireflective coating composition comprising: a polyester resin; an acid or acid generator compound; and a crosslinker compound.

2. Claims: 33-57(where not falling within the scope of claim 1),  
94-143(where not falling within the scope of claim 1)

A) A coated substrate comprising: an antireflective composition layer comprising a resin obtained from a material comprising two or more hydroxy groups; and a photoresist layer over the antireflective composition layer.

B) A method of forming a photoresist relief image, comprising: applying an antireflective composition layer on a substrate, the antireflective composition comprising a resin obtained from a material comprising two or more hydroxy groups; and applying a photoresist composition layer over the antireflective composition layer; and exposing and developing the photoresist layer to provide a resist relief image.

- C) An organic antireflective coating composition for use with an overcoated photoresist comprising: a resin obtained from a material comprising two or more hydroxy groups.

3. Claims: 144-148

A method for obtaining desired real and imaginary refractive index values of an antireflective composition



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
EP 02 25 6723

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

used with an overcoated photoresist layer, comprising  
admixing at least two distinct resins to form the  
antireflective composition.

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ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 6723

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